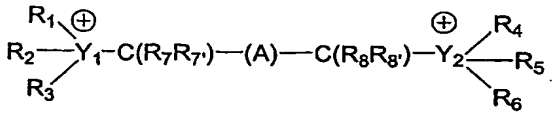
Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

CLAIMS:

1. A compound of Formula (I)



(I)

wherein

Y_1 and Y_2 may be the same or different and are independently selected from N and P;

R_1 to R_6 may be the same or different and are independently selected from the group consisting of optionally substituted C_{1-10} alkyl, optionally substituted C_{2-10} alkenyl, optionally substituted C_{2-10} alkynyl, optionally substituted C_{3-10} cycloalkyl, optionally substituted aryl, optionally substituted aralkyl, optionally substituted heteroaryl, and optionally substituted heterocycloalkyl, wherein said substituents are independently selected from C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, hydroxyl, halogen, $O(C_{1-6}$ alkyl), $C(O)O(C_{1-6}$ alkyl), $OC(O)(C_{1-6}$ alkyl), NO_2, amino, hydroxyC_{1-6} alkyl, aryl, OC(O)Ph, and $=C(Ph)_2$; or

R_1 and R_2 together with the Y_1 group to which they are attached, or R_1, R_2 and R_3 together with the Y_1 group to which they are attached may optionally form a heterocycloalkyl group; and R_4 and R_5 together with the Y_2 group to which they are attached, or R_4, R_5 and R_6 together with the Y_2 group to which they are attached may optionally form a heterocycloalkyl group; wherein each of said heterocycloalkyl groups may be optionally substituted with one or more groups selected from C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, hydroxyl, halogen, $O(C_{1-6}$ alkyl), $C(O)O(C_{1-6}$ alkyl), $OC(O)(C_{1-6}$ alkyl), NO_2, amino, hydroxy C_{1-6} alkyl, aryl, OC(O)Ph, and $=C(Ph)_2$;

R_7, $R_{7'}$, R_8 and $R_{8'}$ may be the same or different and are independently selected from hydrogen, F and Cl;

A comprises one or more groups selected from optionally substituted alkylene, optionally substituted alkenylene, optionally substituted alkynylene, optionally substituted phenyl, optionally substituted C_{5-7} cycloalkyl, and -C(O)-, wherein the length of A is from 5 to 18 carbon atoms, and wherein the substituents are independently selected from C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, hydroxyl, halogen, NO_2, $C(O)R_{10}$, OR_{11}, CH_2OR_{11}, $CH_2NR_{12}R_{13}$, SR_{11}, $NR_{12}R_{13}$, $CONR_{12}R_{13}$, amino acids, dipeptidyl, tripeptidyl, tetrapeptidyl and pentapeptidyl;

R_{10} is selected from OH, OR_{11}, C_{1-6} alkyl;

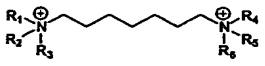
R_{11} is selected from the group consisting of hydrogen, optionally substituted C_{1-10} alkyl, optionally substituted C_{2-10} alkenyl, optionally substituted C_{2-10} alkynyl, optionally substituted C_{3-10} cycloalkyl, optionally substituted aryl, and optionally substituted aralkyl, wherein said optional substituents are independently selected from C_{1-4} alkyl, hydroxyl and halogen;

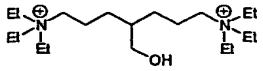
R_{12} and R_{13} are independently selected from the group consisting of hydrogen, optionally substituted C_{1-10} alkyl, optionally substituted C_{2-10} alkenyl, optionally substituted C_{2-10} alkynyl, optionally substituted C_{3-10} cycloalkyl, optionally substituted aralkyl, optionally substituted alkylheteroaryl, wherein said substituents are independently selected from C_{1-4} alkyl, hydroxyl, halogen, amino, and $C(O)OR_{11}$; or

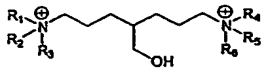
R_{12} and R_{13}, together with the nitrogen atom to which they are attached may form an optionally substituted heterocycloalkyl group, wherein said substituents are independently selected from C_{1-4} alkyl, hydroxyl, halogen, amino, and $C(O)OR_{11}$;

and salts thereof,

provided that the compound of formula (I) is not selected from the following:







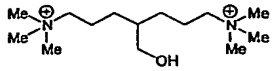
R1 = R2 = R3 = R4 = R5 = R6 = Me, Et, 

R1 = R2 = R4 = R5 = Me, R3 = R6 = Et, Pr

R1 = R2 = R4 = R5 = Et, R3 = R6 = Me

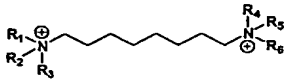
R1 = R2 = R4 = R5 = Pr, R3 =R6 = Me

R1 = R2 = R4 = R5 = allyl, R3 = R6 = Me



R1 = R2 =R4 = R5 = Me, R3 = R6 = Pr

R1 = R2 =R4 = R5 =Pr, R3 = R6 = Me

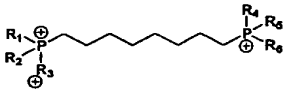


R1 = R2 = R3 = R4 = R5 = R6 = Me, Et, Pr, Bu, pentyl, allyl

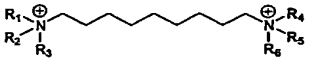
R1 = R2 = R4 = R5 = Me, R3 = R6 = Pr, Bu, Decyl

R1 = R4 = Me, R2 = R3 =R5 = R6 = Hexyl, allyl

R1 = R4 =Me, R2 = R6 = Bu, R3 = R6 = octyl



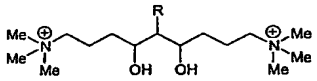
R1 = R2 = R3 = R4 = R5 = R6 = n-Bu, t-Bu, octyl



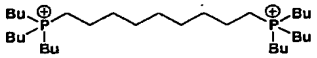
R1 = R2 = R3 = R4 = R5 = R6 = Me, Et, allyl

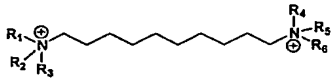
R1 = R2 = R4 = R5 = Me, R3 =R6 = Pr, pentyl

R1 = R2 = R4 = R5 = allyl, R3 = R6 = Et



R = Pr, H, pentyl, hexyl, butyl, Me, Et



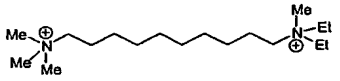


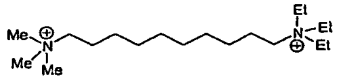
R1 = R2 = R3 = R4 = R5 = R6 = Me, Pr, pentyl, butyl, allyl, ethyl, hexyl

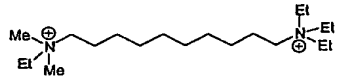
R1 = R2 = R3 = R4 = R5 = R6 = Bu, Et, hexyl, heptyl, pentyl, propyl, decyl, i-Pr, octyl

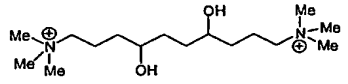
R1 = R4 = Me, R2 = R3 = R5 = R6 = allyl, ethyl

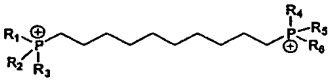
R1 = R2 = R4 = R5 = Et, R3 = R6 = hexyl



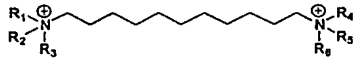






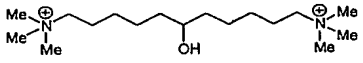


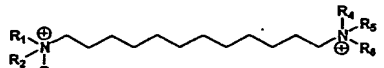
R1 = R2 = R3 = R4 = R5 = R6 = Me, Et, Bu, octyl



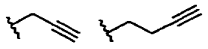
R1 = R2 = R3 = R4 = R5 = R6 = Me, Et

R1 = R2 = R4 = R5 = Me, R3 = R6 = pentyl



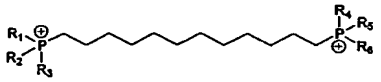


R1 = R2 = R3 = R4 = R5 = R6 = Bu, Et, Pr

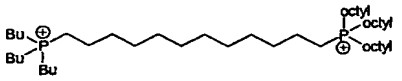
R1 = R2 = R4 = R5 = Me, R3 = R6 = Bu, Et, heptyl, nonyl, 

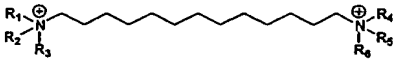
R1 = R2 = R4 = R5 = allyl, R3 = R6 = Me, Et

R1 = R2 = R4 = R5 = hexyl, R3 = R6 = Me

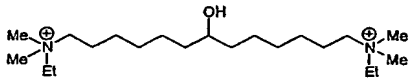


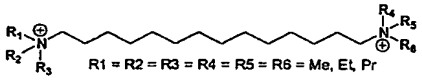
R1 = R2 = R3 = R4 = R5 = R6 = octyl, butyl



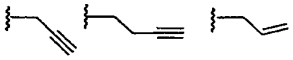


R1 = R2 = R3 = R4 = R5 = R6 = Me, Et

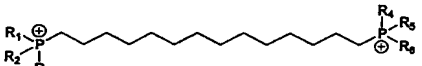




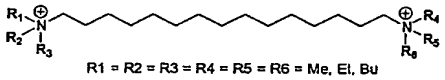
R1 = R2 = R3 = R4 = R5 = R6 = Me, Et, Pr

R1 = R2 = R4 = R5 = Me, R3 = R6 = 

R1 = R4 = Me, R2 = R5 = Et, R3 = R6 = Pr

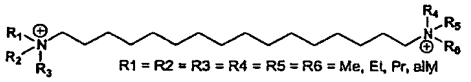


R1 = R2 = R3 = R4 = R5 = R6 = Et



R1 = R2 = R3 = R4 = R5 = R6 = Me, Et, Bu

R1 = R4 = Me, R2 = R5 = Et, R3 = R6 = Pr

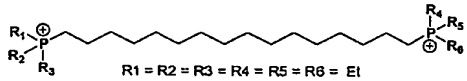


R1 = R2 = R3 = R4 = R5 = R6 = Me, Et, Pr, allyl

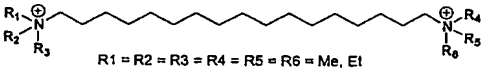
R1 = R2 = R4 = R5 = Me, R3 = R6 = Et

R1 = R2 = R4 = R5 = Et, R3 = R6 = Me

R1 = R4 = Me, R2 = R5 = Et, R3 = R6 = Pr

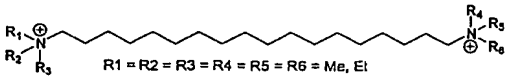


R1 = R2 = R3 = R4 = R5 = R6 = Et



R1 = R2 = R3 = R4 = R5 = R6 = Me, Et

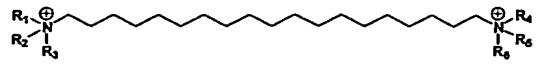
R1 = R4 = Me, R2 = R5 = Et, R3 = R6 = Pr



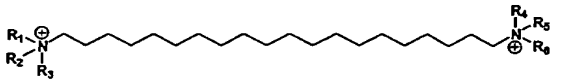
R1 = R2 = R3 = R4 = R5 = R6 = Me, Et

R1 = R2 = R4 = R5 = Et, R3 = R6 = Me

R1 = R4 = Me, R2 = R5 = Et, R3 = R6 = Pr

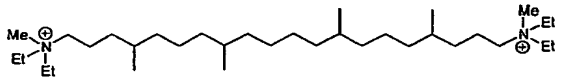


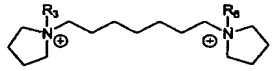
R1 = R2 = R3 = R4 = R5 = R6 = Me, Et



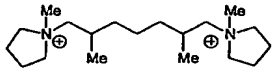
R1 = R2 = R3 = R4 = R5 = R6 = Me, Et, Pr

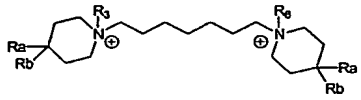
R1 = R4 = Me, R2 = R5 = Et, R3 = R6 = Pr





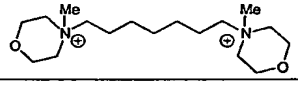
R3 = R6 = Me, Bu

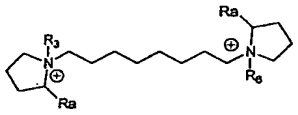




R3 = R6 = Me; Ra, Rb = H

R3 = R6 = Me, Ra = Ph, Rb = CO_2Et

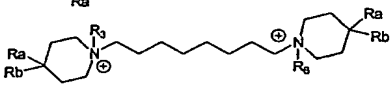




R3 = R6 = Me, Ra = H

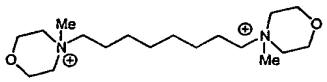
R3 = R6 = Me, Ra = Me

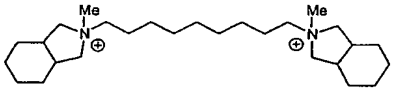
R3 = R6 = Me, Ra = Et

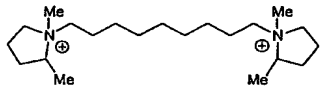


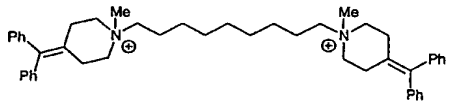
R3 = R6 = Me, Ra = Ph, Rb = CO_2Et

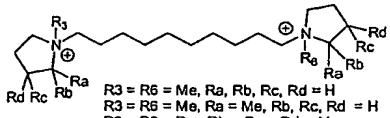
R3 = R6 = Me, Ra, Rb = 







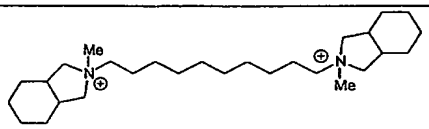


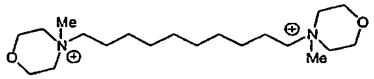


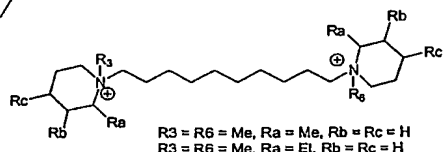
R3 = R6 = Me, Ra, Rb, Rc, Rd = H

R3 = R6 = Me, Ra = Me, Rb, Rc, Rd = H

R3 = R6 = Ra= Rb = Rc = Rd = Me







R3 = R6 = Me, Ra = Me, Rb = Rc = H

R3 = R6 = Me, Ra = Et, Rb = Rc = H

R3 = R6 = Et, Ra = H, Rb = OH, Rc = H

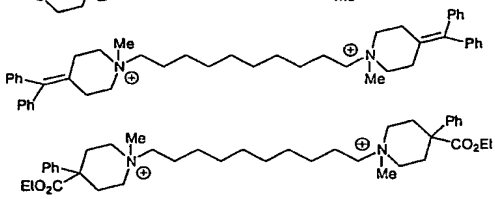
R3 = R6 = Me, Ra = Rb = Rc = H

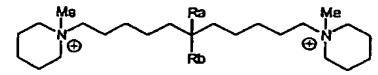
R3 = R6 = Me, Ra = Rb = Rc = H

R3 = R6 = Me, Ra = H, Rb = OC(=O)Pr, Rc = H

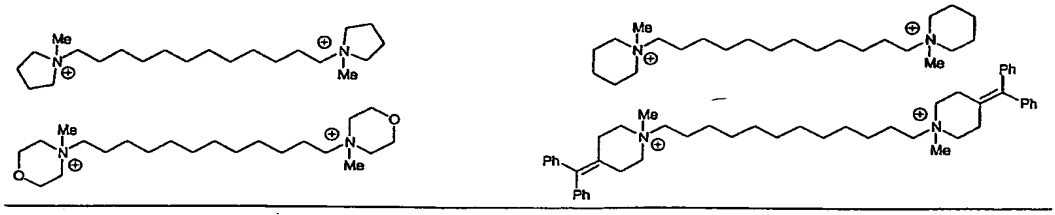
R3 = R6 = Me, Ra = H, Rb = OAc, Rc = H

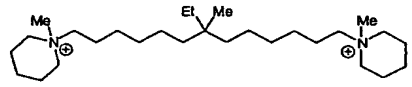
R3 = R6 = Me, Ra = Rb = H, Rc = OC(O)Ph

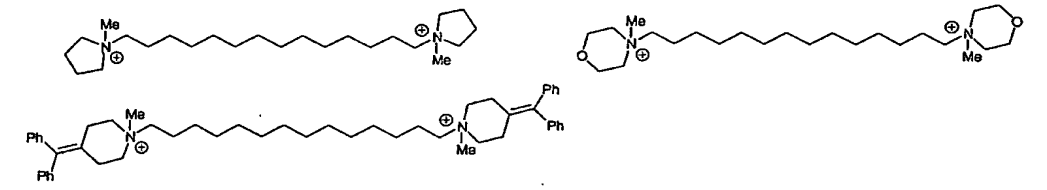


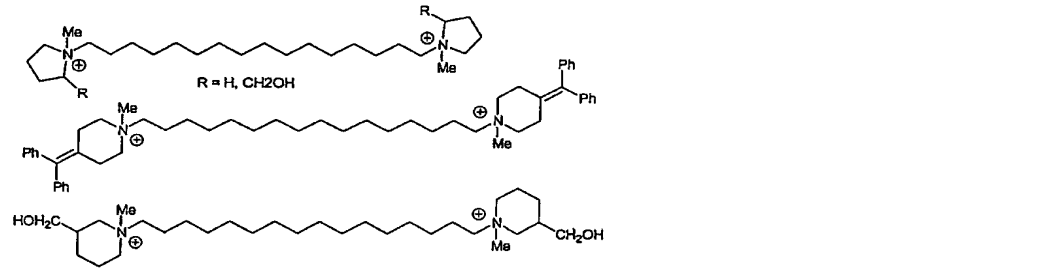


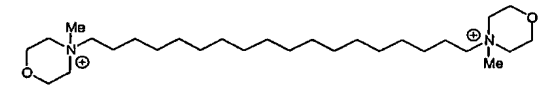
Ra,Rb = H
Ra = Me, Rb = Et











2. A compound according to claim 1, wherein Y_1 and Y_2 are each N.

3. A compound according to claim 1, wherein R_7, $R_{7'}$, R_8, and $R_{8'}$ are each hydrogen.

4. A compound according to claim 1, wherein R_1 to R_6 are independently selected from the group consisting of optionally substituted C_{1-10} alkyl, optionally substituted C_{1-10} alkylene, optionally substituted aryl, and optionally substituted heterocycloalkyl, or

R_1 and R_2 together with the Y_1 group to which they are attached, or R_1, R_2 and R_3 together with the Y_1 group to which they are attached form a heterocycloalkyl group; and

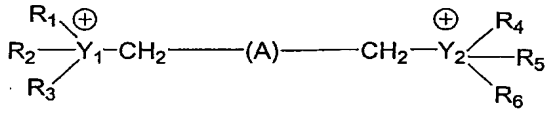
R_4 and R_5 together with the Y_2 group to which they are attached, or R_4, R_5 and R_6 together with the Y_2 group to which they are attached form a heterocycloalkyl group;

wherein said optional substituents are independently selected from C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, hydroxyl, halogen, $O(C_{1-6}$ alkyl), $C(O)O(C_{1-6}$ alkyl), $OC(O)(C_{1-6}$ alkyl), NO_2, amino, hydroxy C_{1-6} alkyl, and aryl.

5. A compound according to claim 1, wherein A comprises one or more groups selected from optionally substituted alkylene, optionally substituted alkenylene, optionally substituted phenyl, and -C(O)-, wherein the substituents are independently selected from C_{1-6} alkyl, C_{2-6} alkenyl, hydroxyl, halogen, NO_2, $C(O)R_{10}$, OR_{11}, CH_2OR_{11}, $CH_2NR_{12}R_{13}$, SR_{11}, $NR_{12}R_{13}$, $CONR_{12}R_{13}$, amino acids, dipeptidyl, tripeptidyl, tetrapeptidyl and pentapeptidyl.

6. A compound according to claim 1, wherein the length of A is from 5 to 9 carbon atoms.

7. A compound according to claim 1, of Formula (Ia):



(Ia)

wherein

Y_1 and Y_2 may be the same or different and are independently selected from N and P;

R_1 to R_6 may be the same or different and are independently selected from the group consisting of optionally substituted C_{1-10} alkyl, optionally substituted C_{2-10} alkenyl, optionally substituted C_{2-10} alkynyl, optionally substituted C_{3-10} cycloalkyl, optionally substituted aryl, optionally substituted heteroaryl, and optionally substituted heterocycloalkyl, wherein said substituents are independently selected from C_{1-6} alkyl, C_{2-6} alkenyl, hydroxyl, halogen, $O(C_{1-6}$ alkyl), $C(O)O(C_{1-6}$ alkyl), NO_2, amino, hydroxy C_{1-6} alkyl, aryl, and OC(O)Ph; or

R_1 and R_2 together with the Y_1 group to which they are attached may optionally form a heterocycloalkyl group; and R_4 and R_5 together with the Y_2 group to which they are attached may optionally form a heterocycloalkyl group; wherein each of said heterocycloalkyl groups may be optionally substituted with one or more groups selected from C_{1-6} alkyl, C_{2-6} alkenyl, hydroxyl, halogen, $O(C_{1-6}$ alkyl), $C(O)O(C_{1-6}$ alkyl), amino, hydroxy C_{1-6} alkyl, and aryl;

A comprises one or more groups selected from optionally substituted alkylene, optionally substituted alkenylene, and optionally substituted phenyl, wherein the length of A is from 5 to 18 carbon atoms, and wherein the substituents are independently selected from C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, halogen, $C(O)R_{10}$, OR_{11}, SR_{11}, CH_2OR_{11}, $CH_2NR_{12}R_{13}$, $NR_{12}R_{13}$, $CONR_{12}R_{13}$, amino acids, dipeptidyl, tripeptidyl, tetrapeptidyl and pentapeptidyl;

R_{10} is selected from OH, OR_{11}, C_{1-6} alkyl;

R_{11} is selected from the group consisting of hydrogen, optionally substituted C_{1-10} alkyl, optionally substituted C_{2-10} alkenyl, optionally substituted C_{2-10} alkynyl, and optionally substituted C_{3-10} cycloalkyl, wherein said optional substituents are independently selected from C_{1-6} alkyl, C_{2-6} alkenyl, aryl, and hydroxyl;

R_{12} and R_{13} are independently selected from the group consisting of hydrogen, optionally substituted C_{1-10} alkyl, optionally substituted C_{2-10} alkenyl, optionally substituted C_{2-10} alkynyl, optionally substituted C_{3-10} cycloalkyl, optionally substituted alkylheteroaryl, wherein said substituents are independently selected from C_{1-6} alkyl, C_{2-6} alkenyl, aryl, hydroxyl, halogen, amino, and $C(O)OR_{11}$; or

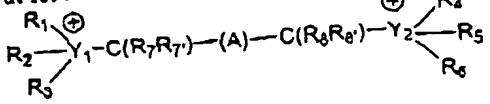
R_{12} and R_{13}, together with the nitrogen atom to which they are attached may form an optionally substituted heterocycloalkyl group, wherein said substituents are independently selected from C_{1-6} alkyl, C_{2-6} alkenyl, hydroxyl, halogen, amino, and $C(O)OR_{11}$,

and salts thereof.

8. A compound according to claim 1, selected from 1,11-bis-(tributylammonium)undecane, 1,16-bis-(tributylammonium)hexadecane, 1,12-bis-(tripentylammonium)dodecane, 1,12-bis-(trihexylammonium)dodecane, 1,12-bis-(trioctylammonium)dodecane, 1,12-bis-(triisobutylammonium)dodecane, 1,12-bis-(triisopentylammonium)dodecane, and 1,12-bis-(1-butylpyrrolidinium)dodecane, and salts thereof.

wherein

9. A method for one or more of treating, inhibiting, and preventing a bacterial or fungal infection in a vertebrate, said method comprising administering to said vertebrate an effective amount of at least one compound of Formula (II):



(II)

wherein

Y_1 and Y_2 may be the same or different and are independently selected from N and P;

R_1 to R_6 may be the same or different and are independently selected from the group consisting of optionally substituted C_{1-10} alkyl, optionally substituted C_{2-10} alkenyl, optionally substituted C_{2-10} alkynyl, optionally substituted C_{3-10} cycloalkyl, optionally substituted aryl, optionally substituted aralkyl, optionally substituted heteroaryl, and optionally substituted heterocycloalkyl, wherein said substituents are independently selected from C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, hydroxyl, halogen, $O(C_{1-6}$ alkyl), $C(O)O(C_{1-6}$ alkyl); NO_2, amino, hydroxy C_{1-6} alkyl, aryl, OC(O)Ph, and $=C(Ph)_2$; or

R_1 and R_2 together with the Y_1 group to which they are attached, or R_1, R_2 and R_3 together with the Y_1 group to which they are attached may optionally form an heterocycloalkyl group; and R_4 and R_5 together with the Y_2 group to which they are attached, or R_4, R_5 and R_6 together with the Y_2 group to which they are attached may optionally form a heterocycloalkyl group; wherein each of said heterocycloalkyl groups may be optionally substituted with one or more groups selected from C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, hydroxyl, and halogen, $O(C_{1-6}$ alkyl), $C(O)O(C_{1-6}$ alkyl), NO_2, amino, hydroxy C_{1-6} alkyl, aryl, and $=C(Ph)_2$;

R_7, $R_{7'}$, R_8 and $R_{8'}$ may be the same or different and are independently selected from hydrogen, F and Cl;

A comprises one or more groups selected from optionally substituted alkylene, optionally substituted alkenylene, optionally substituted phenyl, optionally substituted C_{5-7} cycloalkyl, and -C(O)-, wherein the length of A is from 4 to 18 carbon atoms, wherein the substituents are independently selected from C_{1-6} alkyl, C_{2-6} alkenyl, hydroxyl, halogen, nitro, $C(O)R_{10}$, OR_{11}, CH_2OR_{11}, $CH_2NR_{12}R_{13}$, SR_{11}, $NR_{12}R_{13}$, $CONR_{12}R_{13}$, amino acids, dipeptidyl, tripeptidyl, tetrapeptidyl and pentapeptidyl;

R_{10} is selected from OH, OR_{11}, C_{1-6} alkyl, optionally substituted amino-C_{1-6}-alkylsulfonate, optionally substituted amino-C_{1-6}-alkylphophonate, optionally substituted

amino-C_{1-6}-alkyl-guanidinyl, and optionally substituted amino-C_{1-6}-alkyl-tri(C_{1-6}-alkyl)ammonium;

R_{11} is selected from the group consisting of hydrogen, optionally substituted C_{1-10} alkyl, optionally substituted C_{2-10} alkenyl, optionally substituted C_{2-10} alkynyl, optionally substituted C_{3-10} cycloalkyl, optionally substituted aryl, optionally substituted arylalkyl, optionally substituted amino-C_{1-6}-alkylsulfonate, optionally substituted amino-C_{1-6}-alkylphophonate, optionally substituted amino-C_{1-6}-alkyl-guanidinyl, and optionally substituted amino-C_{1-6}-alkyl-tri(C_{1-6}-alkyl)ammonium, wherein said optional substituents are independently selected from C_{1-4} alkyl, hydroxyl and halogen

R_{12} and R_{13} are independently selected from the group consisting of hydrogen, optionally substituted C_{1-10} alkyl, optionally substituted C_{2-10} alkenyl, optionally substituted C_{2-10} alkynyl, optionally substituted C_{3-10} cycloalkyl, optionally substituted arylalkyl, optionally substituted alkylheteroaryl, optionally substituted amino-C_{1-6}-alkylsulfonate, optionally substituted amino-C_{1-6}-alkylphophonate, optionally substituted amino-C_{1-6}-alkyl-guanidinyl, and optionally substituted amino-C_{1-6}-alkyl-tri(C_{1-6}-alkyl)ammonium, wherein said substituents are independently selected from C_{1-3} alkyl, hydroxyl, halogen, amino, and $C(O)OR_{11}$; or

R_{12} and R_{13}, together with the nitrogen atom to which they are attached may form an optionally substituted heterocycloalkyl group, wherein said substituents are independently selected from C_{1-3} alkyl, hydroxyl, halogen, amino, and $C(O)OR_{11}$.

10. The method according to claim 9, wherein said compound is a compound of Formula (I) as defined in claim 1.

11. The method according to claim 9, wherein the infection is a fungal infection.

12. The method according to claim 9, wherein the infection is a bacterial infection.

13. A method of inhibiting phospholipase in an organism comprising contacting said organism with an effective amount of at least one compound of Formula (I) or at least one compound of Formula (II).

14. The method according to claim 13, wherein the organism is selected from bacteria, fungi, virus, and parasite.

15. The method according to claim 13, wherein the phospholipase is Phospholipase B.

16. The method according to claim 13, wherein the organism is selected from the group consisting of: bacteria, fungi and virus.

17. A method for identifying an antimicrobial agent comprising contacting microbial cells with a compound of Formula (I) or Formula (II) suspected of having antimicrobial properties, determining whether said compound inhibits a microbial phospholipase enzyme, wherein inhibition of said phospholipase enzyme indicates antimicrobial activity, and thereby identifying an antimicrobial agent.

18. Cancel

19. Cancel